

WHAT IS CLAIMED IS:

1. A door suspension assembly comprising:
a substantially flat plate formed of ferromagnetic material extending generally
5 horizontally and adapted to be attached to a door frame above a doorway;
a guide means having an opening formed therethrough and adapted to support a
door panel;
a rail extending through said opening and extending at least approximately a
length of a required door travel;
10 at least two connectors attached to said flat plate and extending downwardly
supporting said rail and said guide means; and
a magnet means attached to said guide means and spaced from said plate to form
a small magnetic gap, such that said magnet means generates a magnetic
force lifting said guide means toward said plate whereby when a door
15 panel is suspended from said guide means, said magnet means generates a
magnetic force sufficient to support at least most of a weight of the door
panel.
2. The door suspension assembly according to claim 1 including a bearing
20 having a generally cylindrical shape with an axial hole formed therein, said bearing being
mounted in said opening of said guide means and said rail extending through said axial
hole.
3. The door suspension assembly according to claim 2 wherein said bearing is
25 made of a synthetic material for sliding contact with said rail.
4. The door suspension assembly according to claim 1 wherein said guide means
includes two supporting blocks each having a lower surface attached to a lower plate,
including connection means extending from said lower plate and adapted to be attached
30 to a door panel, wherein said supporting blocks each have an upper surface attached to an
upper plate, and wherein said magnet means is attached to said upper plate.

5. The door suspension assembly according to claim 1 wherein said rail is a tube.

6. The door suspension assembly according to claim 5 wherein said tube is made of a non-magnetic material and including a linear motor having a primary mounted on said guide means and a secondary mounted in an interior of said tube.

7. The door suspension assembly according to claim 6 wherein said guide means includes two spaced apart supporting blocks said primary is located between said supporting blocks.

8. The door suspension assembly according to claim 1 wherein said magnet means is one of a plurality of neodymium rare earth permanent magnets and a plurality of ferrite permanent magnets.

9. The door suspension assembly according to claim 1 including a support means attached to said flat plate, said support means being adapted for attachment to a crosspiece of a door frame.

10. A door suspension assembly for an elevator comprising:
a substantially flat plate formed of ferromagnetic material extending generally horizontally and adapted to be attached to a door frame above an elevator doorway;
a guide means having an opening formed therethrough;
a door panel suspended from said guide means;
a rail extending through said opening and extending at least approximately a length of a required travel of said door panel;
at least two connectors attached to said flat plate and extending downwardly supporting said rail and said guide means; and
a magnet means attached to said guide means and spaced from said plate to form a small magnetic gap, such that said magnet means generates a magnetic

force lifting said guide means toward said plate with a magnetic force sufficient to support at least most of a weight of said door panel.

11. The door suspension assembly according to claim 10 wherein said guide
5 means includes two supporting blocks each having a lower surface attached to a lower plate, including connection means extending from said lower plate and attached to said door panel, wherein said supporting blocks each have an upper surface attached to an upper plate, and wherein said magnet means is attached to said upper plate.

10 12. The door suspension assembly according to claim 11 wherein said opening extends through said supporting blocks, and including a pair of bearings having a generally cylindrical shape with an axial hole formed therein, each said bearing being mounted in said opening of an associated one of said supporting blocks and said rail extending through said axial holes.

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13. The door suspension assembly according to claim 12 wherein said bearings are made of a synthetic material for sliding contact with said rail.

14. The door suspension assembly according to claim 10 wherein said rail is a
20 tube.

15. The door suspension assembly according to claim 14 wherein said tube is made of a non-magnetic material and including a linear motor having a primary mounted on said guide means and a secondary mounted in an interior of said tube.

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16. The door suspension assembly according to claim 15 wherein said guide means includes two spaced apart supporting blocks said primary is located between said supporting blocks.

30 17. The door suspension assembly according to claim 10 wherein said magnet means is one of a plurality of neodymium rare earth permanent magnets and a plurality of ferrite permanent magnets.

18. A door suspension assembly comprising:

a support means having a substantially flat plate formed of ferromagnetic material
extending generally horizontally, said support means adapted to be
5 attached to a door frame above a doorway;

a guide means including a pair of spaced apart supporting blocks each having an
opening formed therethrough and adapted to support a door panel;

a rail extending through said openings and extending at least approximately a
length of a required door travel;

10 at least two connectors attached to said flat plate and extending downwardly
supporting said rail and said guide means; and

a magnet means attached to said guide means and spaced from said plate to form
a small magnetic gap, such that said magnet means generates a magnetic
force lifting said guide means toward said plate whereby when a door
15 panel is suspended from said guide means, said magnet means generates a
magnetic force sufficient to support at least most of a weight of the door
panel.

19. The door suspension assembly according to claim 18 wherein said rail is a
20 tube made of a non-magnetic material and including a linear motor having a primary
mounted on said guide means and a secondary mounted in an interior of said tube.